

What is claimed is:

1. A solid state silicon-based condenser microphone comprising
 - 5 ~~(1)~~ a silicon transducer chip (1) including a backplate (13) and a diaphragm (12) arranged substantially parallel to each other, thereby forming an electrical capacitor, the diaphragm (12) being movable relative to the backplate (13) in response to incident sound,
 - 10 ~~(2)~~ an integrated electronic circuit chip (3) electrically coupled to the transducer chip (1),
 - 15 ~~(3)~~ an intermediate layer (2) fixing the transducer chip (1) to the integrated electronic circuit chip (3) in a spaced relationship, with the transducer chip (1) on a first side of the intermediate layer (2) and the integrated electronic circuit chip (3) on a second side of the intermediate layer (2) opposite the first side, the intermediate layer (2) having a first through going opening (4, 10) between its first side and its second side giving access of sound to the diaphragm.
- 25 2. A condenser microphone according to claim 1 wherein the intermediate layer (2) on a surface thereof has electrical conductors (14) electrically connecting the transducer chip (1) to the integrated circuit chip (3).
- 30 3. A condenser microphone according to claim 2 wherein the intermediate layer (2) has a second through going opening (18) with a surface on which the electrical conductors (14) electrically connecting the transducer chip (1) to the integrated circuit chip (3) are situated.

4. A condenser microphone according to claim 1 wherein the opening (4) in the intermediate layer is covered with a film (5) sealing the opening (4) on the second side of the intermediate layer (2).

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5. A condenser microphone according to claim 1 wherein a cavity (11) is provided in the transducer chip (1) on a side of the diaphragm (12) opposite the intermediate layer (2).

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6. A condenser microphone according to claim 5 wherein the cavity (11) is a closed cavity.

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7. A condenser microphone according to claim 2 wherein the integrated electronic circuit chip (3) has a surface including electronic circuits with said surface facing the intermediate layer (2).

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8. A condenser microphone according to claim 1 wherein the intermediate layer (2) is a silicon-based chip.